



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,647	01/18/2001	Galina Dorozhkina	109289.00173	6089
27557	7590	12/16/2004	EXAMINER	
BLANK ROME LLP 600 NEW HAMPSHIRE AVENUE, N.W. WASHINGTON, DC 20037				MARKHAM, WESLEY D
		ART UNIT		PAPER NUMBER
		1762		

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/761,647	DOROZHINA ET AL.
	Examiner	Art Unit
	Wesley D Markham	1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 17 November 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-37 is/are pending in the application.
 4a) Of the above claim(s) 3-5,8-14,18-26,31 and 35-37 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,2,6,7,15,16,27-30 and 32-34 is/are rejected.
 7) Claim(s) 17 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 18 January 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 2 total.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, drawn to a method of making an optical information storage medium (Claims 1, 2, 15, 16, 27 – 29, and 32 – 34 being generic in this group), along with the species embodied by Claims 6, 7, 17, and 30, in the reply filed on 11/17/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 3 – 5, 8 – 14, 18 – 26, 31, and 35 – 37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species and invention, there being no allowable generic or linking claim. An Office Action on the merits follows.

Information Disclosure Statement

2. The IDSs filed by the applicant on 6/25/2001 and 8/16/2001 are acknowledged by the examiner, and the references listed thereon have been considered as indicated on the attached copies of the PTO-1449 forms.

Drawings

3. The drawings are objected to because of the following informalities:

- Figures 1 – 4 (especially the solid base "2" and the polymerizable composition "3") are too dark and blurry, thereby making it difficult to discern what the figures intend to show.

Art Unit: 1762

- The figures labels (i.e., "Fig. 1", etc.) and reference characters in Figures 1 – 7 are hand-written and unclear. As such, the drawings do not comply with 37 CFR 1.84(l), which requires that every line, number, and letter in the drawings must be sufficiently dark and dense, as well as uniformly thick and well-defined.
- Figures 5 – 7 are hand-drawn in a manner that renders the figures, and what they intend to show, unclear. As such, Figures 5 – 7 do not comply with 37 CFR 1.84(l), which requires that every line, number, and letter in the drawings must be sufficiently dark and dense, as well as uniformly thick and well-defined.
- The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "A" in Figure 3.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office Action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the

remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office Action. The objection to the drawings will not be held in abeyance.

Specification

4. The lengthy specification (22 pages, exclusive of the claims) has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
5. The use of the trademarks IRGACURE and DAROCURE has been noted in this application. They should be capitalized wherever they appear and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner that might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 6, 7, 30, 33, and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
8. **Claims 6** (from which **Claim 7** depends) and **33** contain the trademark/trade name IRGACURE. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a specific polymerization initiator and, accordingly, the identification/description is indefinite.
9. **Claim 6** requires, in part, 20% of OCM-2, 80% of aliphatic urethane triacrylate, and 2% of IRGACURE 651. However, the claim does not specify (1) what kind of % value is required (e.g., weight %, volume %, mole %, etc.), and (2) what the % values are measured in relation to (e.g., % of the total composition, relative % of the recited components only, etc.). As such, it is unclear what specific polymerizable composition is required by Claim 6, and the scope of the claim is indefinite.
10. **Claim 7** requires, in part, 2 wt% of phenanthrenequinone and 1 wt% of triethanolamine. However, the claim does not specify what the % values are

measured in relation to (e.g., % of the total composition, relative % of the recited components only, etc.). As such, it is unclear what specific polymerizable composition is required by Claim 7, and the scope of the claim is indefinite.

11. **Claim 30** requires, in part, a filling composition comprising 3 wt% of a polyacrylic acid solution in a mixture of 80% ethyl glycol and 20% isopropanol. However, the claim does not specify (1) what kind of % value is used in conjunction with the ethyl glycol and isopropanol components (e.g., weight %, volume %, mole %, etc.), and (2) what the % values are measured in relation to (e.g., % of the total composition, relative % of the recited components only, etc.). As such, it is unclear what specific filling composition is required by Claim 30, and the scope of the claim is indefinite.

12. **Claim 34** requires, in part, a polymerizable composition doped with 4% benzoyl peroxide and 0.1 % percent dibutylaniline. However, the claim does not specify (1) what kind of % value is used (e.g., weight %, volume %, mole %, etc.), and (2) what the % values are measured in relation to (e.g., % of the total composition, relative % of the recited components only, etc.). As such, it is unclear what specific polymerizable composition is required by Claim 34, and the scope of the claim is indefinite.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1, 2, 15, 16, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glushko et al. (WO 98/50914 A1) in view of either Otaki (JP 03-173954 A) or Kashiwagi et al. (USPN 6,023,451).

16. Regarding independent **Claim 1**, Glushko et al. teaches a method of making an optical information storage medium (Abstract), the method comprising (1) disposing a polymerizable composition “4” between a base “2” and a stamper “6” (i.e., a covering layer), at least one of the base and the covering layer having a first relief pattern on a side facing the polymerizable composition, (2) distributing the polymerizable composition between the base and the covering layer, (3) polymerizing the polymerizable composition while the composition is distributed between the base and the covering layer to form a polymerized layer having a second relief pattern corresponding to the first relief pattern, (4) separating the polymerized layer from the first relief pattern (i.e., the stamper), and (5) filling the

second relief pattern (i.e., the pattern in the polymerized layer "4") with a fluorescent information storage material "11" (Abstract, Figures 1A – 1I, page 1, lines 2 – 4, pages 3 – 4, page 5, lines 26 – 28, and pages 6 – 9). Glushko et al. does not explicitly teach spinning the base, the polymerizable composition, and the covering layer to distribute the composition. However, the pattern-forming process of Glushko et al. generally comprises UV-curing a photopolymerizable material located between a transparent substrate / base material and a transparent patterned stamper by radiating UV-light through either the transparent substrate / base material or the transparent stamper (pages 6 – 7). The purpose of this process is to produce a cured polymeric base having a desired pattern corresponding to the pattern of the stamper so that the desired pattern can be subsequently filled with a fluorescent information storage material. Otaki teaches that, in the art of producing a cured resin optical disk having a desired pattern (i.e., a process analogous to that of Glushko et al.), it is desirable to spin the base, the polymerizable (resin) composition, and the stamper in order to distribute the polymerizable composition between the base and the stamper while irradiating the composition through the transparent base with UV-light, thereby curing the composition and insuring that the resultant patterned optical disk has a truly circular shape (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art to spin the base, the polymerizable composition, and the covering layer to distribute the composition in the process of Glushko et al., as taught by Otaki, with the reasonable expectation of successfully and advantageously producing a patterned polymeric optical disk (as desired by Glushko et al.) that is

accurately formed to have a desired shape (e.g., circular), due to the nature of the spinning / UV curing process taught by Otaki. Alternatively, Kashiwagi et al. teaches that, in the art of producing an optical recording medium, it is desirable to spin the base, the polymerizable (resin) composition, and the stamper in order to distribute the polymerizable composition between the base and the stamper prior to irradiating the composition through the transparent base with UV-light, thereby curing the composition and insuring that the resultant patterned optical disk has the specific thickness desired by the purveyor in the art (Figures 13 – 15, Col.10, lines 49 – 67). Therefore, it would have been obvious to one of ordinary skill in the art to spin the base, the polymerizable composition, and the covering layer to distribute the composition in the process of Glushko et al., as taught by Kashiwagi et al., with the reasonable expectation of successfully and advantageously producing a patterned polymeric optical disk (as desired by Glushko et al.) that is accurately formed to have a desired thickness due to the nature of the spinning / UV curing process taught by Kashiwagi et al. Regarding **Claim 2**, the combination of Glushko et al. and either Otaki or Kashiwagi et al. teaches that the composition is photopolymerizable in light, the covering layer is transparent to the wavelength of the light, and the polymerizing step comprises irradiating the light to the composition through the covering layer (page 6, lines 16 – 18, page 7, lines 2 – 4 of Glushko et al; Abstract of Otaki; Col.10, lines 49 – 67 of Kashiwagi et al.). Regarding **Claims 15 and 16**, Glushko et al. also teaches providing a filling composition comprising a fluorescent dye, and filling the relief pattern with the filling composition, wherein the filling

composition comprises a polymerizable substance and a solvent (page 7, lines 5 – 27, page 8, lines 23 – 26). Regarding **Claim 32**, the combination of Glushko et al. and either Otaki or Kashiwagi et al. teaches repeating the steps to form a plurality of information layers, and adhering the plurality of layers together to form a multilayer optical information storage medium (page 9, lines 4 – 26, page 10, lines 23 – 27, page 13, lines 14 – 16 of Glushko et al.).

17. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glushko et al. (WO 98/50914 A1) in view of either Otaki (JP 03-173954 A) or Kashiwagi et al. (USPN 6,023,451), in further view of Onishi et al. (USPN 6,368,684 B1).

18. The combination of Glushko et al. and either Otaki or Kashiwagi et al. teaches all the limitations of **Claim 27** as set forth above in paragraph 16, except for a method wherein step (e) (i.e., the filling step) comprises providing a filling composition, filling the relief pattern with the filling composition, covering the filling composition with a covering composition comprising a fluorescent dye, and causing the fluorescent dye to diffuse into the filling composition. Specifically, Glushko et al. teaches directly filling the relief pattern with a filling composition (e.g., polymer, solvent, fluorescent dye) that is already fluorescent (page 7, lines 5 – 27, page 8, lines 23 – 26). However, Onishi teaches that it was known in the art at the time of the applicant's invention to produce a patterned fluorescent dye material layer by providing a polymeric receptor layer (i.e., "filling composition") on a substrate, covering the layer

with a covering composition comprising a fluorescent dye, and heating the covering composition / layer to cause the desired pattern of fluorescent dye to diffuse into polymeric receptor layer (Abstract, Col.3, lines 32 – 46, Col.5, lines 32 – 38, Col.7, lines 1 – 18, Col.12, lines 66 – 67, Col.13, lines 1 – 15, and Col.14, lines 17 – 40). Therefore, it would have been obvious to one of ordinary skill in the art to utilize such a fluorescent dye diffusion method taught by Onishi et al., specifically, to use a non-fluorescent dye containing filling composition as a receptor material, covering the filling composition with a covering composition comprising a fluorescent dye, and causing the fluorescent dye to diffuse into the filling composition, with the reasonable expectation of success and obtaining similar results (i.e., successfully producing a polymeric, fluorescent dye-containing, patterned material on the optical disk substrate, regardless of whether the fluorescent dye is directly included in the filling composition (as taught by Glushko et al.) or diffused into a dye receptive filling composition (as taught by Onishi et al.)). Regarding **Claim 28**, Onishi et al. also teaches that the fluorescent dye receptor material should be a polymer that is capable of being dyed by such a dye-diffusion process (Col.14, lines 32 – 40). Therefore, it would have been obvious to one of ordinary skill in the art to utilize such a dye receptive polymeric material as the filling composition in Glushko et al. so that the fluorescent dye is easily diffused only in the filling composition (i.e., the receptive material) and not into the polymerized optical disc substrate layer, thereby obtaining the desired fluorescent dye pattern. In doing so, the dye receptive polymer filling

material would, of course, have a higher rate of dye-diffusion than the polymerized optical disk substrate.

19. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glushko et al. (WO 98/50914 A1) in view of either Otaki (JP 03-173954 A) or Kashiwagi et al. (USPN 6,023,451), in further view of Onishi et al. (USPN 6,368,684 B1), in further view of either Glushko et al.(2) (USPN 6,071,671) or Sato et al. (USPN 5,801,884).
20. The combination of Glushko et al., either Otaki or Kashiwagi et al., and Onishi et al. teaches all the limitations of **Claim 29** as set forth above in paragraph 18, except for a method wherein the fluorescent dye comprises oxazine 1. However, the fluorescent dye used in the information storage disk of Glushko et al. does not appear to be particularly limited (page 7, line 8). Both Glushko et al.(2) (Col.11, lines 49 – 65) and Sato et al. (Col.4, lines 29 – 67, Col.5, lines 1 – 42) teach that a wide variety of fluorescent dyes, including oxazine 1, were known in the art at the time of the applicant's invention, and such dyes can be successfully incorporated into polymeric materials. Therefore, absent any showing of criticality or unexpected results, it would have been obvious to one of ordinary skill in the art to utilize any known fluorescent dye, including oxazine 1, to produce the fluorescent information storage medium of Glushko et al. with the reasonable expectation of success and obtaining similar results, regardless of the specific fluorescent dye utilized.

21. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glushko et al. (WO 98/50914 A1) in view of either Otaki (JP 03-173954 A) or Kashiwagi et al. (USPN 6,023,451), in further view of Olson et al. (USPN 6,355,754 B1).

22. The combination of Glushko et al. and either Otaki or Kashiwagi et al. teaches all the limitations of **Claim 33** as set forth above in paragraph 16, except for a method wherein the polymerizable composition is doped with 3% IRGACURE 1700. However, the polymerizable composition of Glushko et al. is a UV-curable photopolymeric composition in general (page 6, lines 3 – 9). Olson et al. teaches that, in the art of UV-curable photopolymeric compositions, it is desirable to include a photoinitiator such as IRGACURE 1700 in the composition so that the composition can be cured by irradiation with light (Col.10, lines 64 – 66, Col.11, lines 1 – 18). The photoinitiator is included in an amount of 0.1 to 10 parts by weight (i.e., a range that overlaps the applicant's claimed value of 3%) (Col.11, lines 16 – 18). Therefore, it would have been obvious to one of ordinary skill in the art to include from 0.1 to 10 ppw of a photoinitiator such as IRGACURE 1700 in the polymerizable composition of Glushko et al., as taught by Olson et al., in order to enhance the photopolymerizability / UV-curability of the composition (i.e., due to the presence of the photoinitiator).

23. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glushko et al. (WO 98/50914 A1) in view of either Otaki (JP 03-173954 A) or Kashiwagi et al.

(USPN 6,023,451), and in further view of Russell (USPN 4,407,855) and Suga et al. (USPN 5,194,490).

24. The combination of Glushko et al. and either Otaki or Kashiwagi et al. teaches all the limitations of **Claim 34** as set forth above in paragraph 16, except for a method wherein the polymerizable composition is doped with 4% benzoyl peroxide and 0.1% dibutylaniline. However, the polymerizable composition of Glushko et al. is a UV-curable photopolymeric composition in general (page 6, lines 3 – 9). Russell teaches that a small amount of benzoyl peroxide acts as a photoinitiator, and such peroxide has the added advantage that it can be used in smaller amounts than other photoinitiators and does not discolor or yellow the cured materials (Col.2, lines 38 – 54). According to Russell, a combination of photoinitiators may be used (Col.2, lines 53 – 54). Suga et al. teaches that a polymerization promotor such as dibutylaniline (0.01 to 10 wt.% - a value that encompasses the applicant's claimed value) and a polymerization initiator such as benzoyl peroxide (0.01 to 10 wt.% - a value that encompasses the applicant's claimed value) can be used in order to promote the curing of a polymerizable composition (Abstract, Col.3, lines 18 – 50, Col.5, lines 3 – 26, Col.6, lines 28 – 30). In view of these teachings, it would have been obvious to one of ordinary skill in the art to include a combination of dibutylaniline (0.1 – 10%) and benzoyl peroxide (0.1 – 10%) as polymerization promoters / initiators in the polymerizable composition of Glushko et al. in order to enhance the photopolymerizability / UV-curability of the composition (i.e., due to the presence of the polymerization promoters / initiators). By using benzoyl peroxide as one of the

photoinitiators, one of ordinary skill in the art would have reasonably expected to advantageously (1) reduce the amount of initiator required to promote curing and (2) prevent discoloration of the cured material.

Allowable Subject Matter

25. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 6, 7, and 30 have been rejected under 35 U.S.C. 112, second paragraph, for the reasons set forth above, but no prior art has been applied against the claims.

26. The following is a statement of reasons for the indication of allowable subject matter:
The prior art of record, alone or in combination, does not teach or reasonably suggest performing the applicant's claimed method of making an optical information storage medium (i.e., with a fluorescent information storage material) with the specific polymerizable composition required by Claims 6 and 7, the specific fluorescent dye-containing filling composition required by Claim 17, and/or the specific filling composition required by Claim 30.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (571)

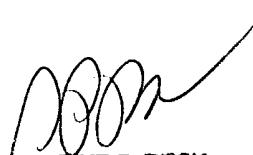
272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wesley D Markham
Examiner
Art Unit 1762


WDM


SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700